REMARKS

Claim Rejections 35 U.S.C. § 102 (b)

The Examiner has rejected claims 16-21 under 35 U.S.C. §102 (b) as being anticipated by Reich et al. (US 5,900,340).

Applicant respectfully disagrees with the Examiner. Applicant has amended claim 16. An embodiment of Applicant's claimed invention, as claimed in claim 16, as amended, discloses a method including: providing design data and design rules for a layout; converting the design data into primary features for a set of mask patterns (10); generating assist features on one of the mask patterns that overlap the primary features on another of the mask patterns (20); checking whether the design rules are violated (30); repeating the converting and the generating until the design rules are no longer violated; verifying whether the mask patterns can be combined to produce the layout (40); adjusting the primary features and the assist features until the layout is produced; and obtaining final mask data for the layout. See Figure 8.

In contrast, the reference of Reich et al. that is cited by the Examiner teaches a method of forming edge biasing shapes with base shapes on the same mask pattern.

Figures 5-6 show a method of forming edge biasing shapes (38) that are not unioned with base shapes (32) on the same mask pattern. Figures 7-8 also show a method of forming edge biasing shapes (54) that are not unioned with base shapes (32) on the same mask pattern.

Figures 9-10 show a method of forming edge biasing shapes (74, 76) that are unioned with base shapes (60, 62) on the same mask pattern. Figures 11-12 also show a method of forming edge biasing shapes (102, 104) that are unioned with base shapes (60, 62) on the same mask pattern.

The Reich et al. reference cited by the Examiner does not teach generating assist features on one of the mask patterns (in a set of mask patterns) that overlap the primary features on another of the mask patterns (in the set of mask patterns). Consequently, Reich et al. does not teach each and every element of claim 16, as amended, of Applicant's claimed invention so Reich et al. does not anticipate claim 16, as amended, of Applicant's claimed invention.

Claims 17-21 of Applicant's claimed invention are dependent on claim 16, as amended, of Applicant's claimed invention. Thus, the Reich et al. reference cited by the Examiner also does not teach each and every element of claims 17-21 of Applicant's claimed invention so Reich et al. also does not anticipate claims 17-21 of Applicant's claimed invention.

In view of the foregoing, Applicant respectfully requests the Examiner to withdraw the rejections to claims 16-21 under 35 U.S.C. § 102 (b).

Claim Rejections 35 U.S.C. § 102 (e)

The Examiner has rejected claims 16-21 under 35 U.S.C. §102 (e) as being anticipated by Mansfield et al. (US 6,421,820) or Chang et al. (US 6,370,679).

Applicant respectfully disagrees with the Examiner. Applicant has amended claim 16. An embodiment of Applicant's claimed invention, as claimed in claim 16, as amended, discloses a method including: providing design data and design rules for a layout; converting the design data into primary features for a set of mask patterns (10); generating assist features on one of the mask patterns that overlap the primary features on another of the mask patterns (20); checking whether the design rules are violated (30); repeating the converting and the generating until the design rules are no longer violated; verifying whether the mask patterns can be combined to produce the layout (40); adjusting the

primary features and the assist features until the layout is produced; and obtaining final mask data for the layout. See Figure 8.

In contrast, the reference of Mansfield et al. that is cited by the Examiner teaches a method of forming assist features with original shapes on the same mask pattern. See lines 29-65 in col. 4. Also, see Figures 4A-4B. Figure 7 shows a mask pattern after assist features have been added to the original shapes in the mask pattern of Figure 1A.

Similarly, the reference of Chang et al. that is cited by the Examiner teaches a method of adding positive serifs (732) and negative serifs (734) to a desired pattern (710) to form a single mask (730). See lines 66-67 in col. 15. Also, see Figure 7A. The locations and sizes of the added features depend on the correction rules that are applied.

The reference of Chang et al. that is cited by the Examiner also teaches a method of adding hammerheads (762), assist bars (764), and bias bars (766) to a desired pattern (740) to form a single mask (760). See lines 4-7 in col. 16. Also, see Figure 7B. The locations and sizes of the added features depend on the correction rules that are applied.

Neither the Mansfield et al. reference nor the Chang et al. reference cited by the Examiner teaches generating assist features on one of the mask patterns (in a set of mask patterns) that overlap the primary features on another of the mask patterns (in the set of mask patterns). Consequently, neither Mansfield et al. nor Chang et al. teaches each and every element of claim 16, as amended, of Applicant's claimed invention so neither Mansfield et al. nor Chang et al. anticipates claim 16, as amended, of Applicant's claimed invention.

Claims 17-21 of Applicant's claimed invention are dependent on claim 16, as amended, of Applicant's claimed invention. Thus, neither the Mansfield et al. reference nor the Chang et al. reference cited by the Examiner teaches each and every element of claims 17-21 of Applicant's claimed invention so neither Mansfield et al. nor Chang et al. anticipates claims 17-21 of Applicant's claimed invention.

In view of the foregoing, Applicant respectfully requests the Examiner to withdraw the rejections to claims 16-21 under 35 U.S.C. § 102 (e).
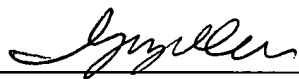
Conclusion

Applicant believes that all claims pending are now in condition for allowance so such action is earnestly solicited at the earliest possible date.

If there are any additional charges, please charge Deposit Account No. 02-2666. If a telephone interview would in any way expedite the prosecution of this application, the Examiner is invited to contact the undersigned at (408) 720-8300.

Respectfully submitted,

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